

What is claimed is:

1. A method for controlling operations in a video guidance sensor system wherein images of laser output signals transmitted by the system and returned from a target are captured and processed by the system to produce data used in tracking of the target, said target including a predetermined pattern of light reflectors so that a captured image of the target includes a pattern of light spots corresponding to the pattern of light reflectors, said method providing for performance of each of the following modes of operation in response to a corresponding mode command:

(i) a reset mode wherein program integrity checks are performed and an output produced;

(ii) a diagnostic mode wherein diagnostic operations are carried out and a known output is obtained from captured images of a previously synthesized image;

(iii) a standby mode wherein status data is output at a fixed rate;

(iv) an acquisition mode wherein range information is included in a corresponding acquisition mode command and an attempt is made, based on captured images of returned laser signals, to find a target pattern within a range window centered around an estimated range;

(v) a tracking mode wherein images of a target are captured and data relevant to that target is output; and

(vi) a spot mode wherein captured images of returned laser signals are processed to produce data for all spots found in the image,

and the method providing for automatic transition to the standby mode from said reset mode after said integrity checks are performed and from said diagnostic mode to said reset mode after said diagnostic operations are carried out, and

said method permitting acceptance of acquisition, spot, reset and diagnostic commands only when the system is in the standby mode, and

said method further providing for automatic transition from said acquisition mode to the tracking mode when an acceptable target is found.

2. A method according to claim 1 wherein two different rates of tracking are provided in the tracking mode, and the tracking rate to be used is determined as part of an acquisition mode command.
3. A method according to claim 1 wherein two different rates of tracking are provided in the tracking mode, and the tracking rate to be used is determined based on a separate tracking command.
4. A method according to claim 1 wherein entry into the reset mode is limited to one of (i) powering up the video guidance sensor system and (ii) the system undergoing a soft reboot.
5. A method according to claim 1 wherein in each of said modes an output is produced which includes analog data corresponding to temperature and voltage levels of system hardware.
6. A method according to claim 1 wherein the method is carried out using two different digital signal processors or microprocessors.
7. A method according to claim 6 wherein one of said processors receives said mode commands from an external source, processes said commands and passes the commands to the other of said processors and the other of said processors carries out image processing required by some of said commands.